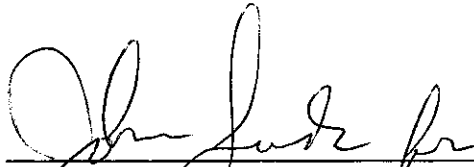


100/300 AREA UNIT MANAGERS MEETING
APPROVAL OF MINUTES
October 11, 2007

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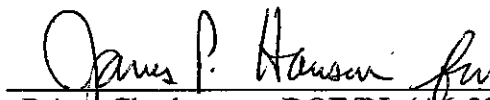
APPROVAL:


Stacy Charboneau, DOE/RL (A3-04)
River Corridor Project Manager

Date

11/08/07

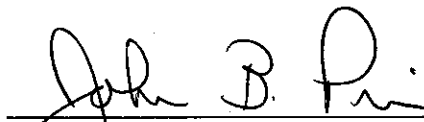
APPROVAL:


Brian Charboneau, DOE/RL (A6-33)
Groundwater Project Manager

Date

11/8/07

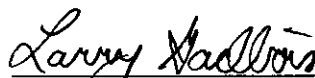
APPROVAL:


John Price, Ecology (H0-57)
Environmental Restoration Manager

Date

11-08-2007


APPROVAL:


Larry Gadbois, Rod Lobos, or Laura
Buelow, EPA (B1-46)
100 Aggregate Area Unit Manager

Date

11-08-07

APPROVAL:


Alicia Boyd, EPA (B1-46)
300 Aggregate Area Unit Manager

Date

11-08-2007

100 & 300 AREA UNIT MANAGER MEETING MINUTES

Groundwater, Source Operable Units, Facility (D4 and ISS), and Mission Completion

October 11, 2007

Washington Closure Hanford (WCH) Building, 2620 Fermi Drive, Richland, Washington

ADMINISTRATIVE

- Next Unit Manager Meeting (UMM) - The next meeting will be held November 8, 2007 at the Washington Closure Hanford (WCH) Office Building, 2620 Fermi Avenue, room C209.
- Attendees/Delegations - Attachment A is the list of attendees. Representatives from each agency were present to conduct the business of the Unit Managers Meeting. Attachment B documents any delegations received from the agencies.
- Approval of Minutes - The September 13, 2007 meeting minutes were approved by the U.S. Environmental Protection Agency (EPA), Washington State Department of Ecology (Ecology), and U.S. Department of Energy, Richland Operations Office (RL).
- Action Item Status - Status of action items was performed, and updates provided (Attachment C).
 - Agreement: RL, EPA, and Ecology agreed to discontinue carrying the closed action items for the past year. The action item list will still identify open action items, and those that are closed will be carried for one additional month.
- Agenda: Attachment D is the meeting agenda.

EXECUTIVE SESSION (Tri-Parties Only)

Attachment 1 was provided by RL and outlined draft issues and recommendations to facilitate framing the global issues for the *100 Area and 300 Area River Corridor Baseline Risk Assessment Report*.

Action: RL shall provide EPA and Ecology with a red-line version of Appendix G of the *100 Area Remedial Design Report/Remedial Action Work Plan*, Rev. 5 to assist in reviewing the proposed changes.

Agreement 1: EPA and Ecology approved RL's request seeking additional time for responding to comments, beyond 30-days, due to the complexity and number of the comments received on the *100 Area and 300 Area River Corridor Baseline Risk Assessment Report*. EPA and Ecology requested RL provide a plan/schedule by November 8, 2007 for resolving comments and updating the document, as well as the schedule for responding to specific comments received by the public.

Agreement 2: RL, EPA, and Ecology shall develop a process/protocol to technically justify elimination of a contaminant-of-concern (COC) from the COC list. RL shall provide a whitepaper to assist in the development of the process.

Agreement 3: RL, EPA, and Ecology shall outline the process/protocol for determining the Exposure Point Concentrations (EPC) for the risk assessment. RL shall provide a whitepaper to assist in the development of the process. For example: Cleanup Verification Package/Remaining Site Verification Package (CVP/RSVP) data consist of small data sets of composite and/or biased samples. These sample sets can be problematic in determining EPCs. RL, EPA, and Ecology approved continued use of CVP/RSVP data in the risk assessment.

Agreement 4: RL shall provide EPA and Ecology a cross-walk that demonstrates consistency between the CERCLA baseline risk assessment methods used in the RCBRA human health risk assessment and the methods described in WAC 173-340-740 (MTCA Method B; unrestricted land use) and WAC 173-340-745 (MTCA Method C; industrial land use).

Agreement 5: RL agreed the WAC 173-340 (MTCA) industrial and residential scenarios for chemicals could be evaluated in addition to the scenarios included in the Draft A River Corridor Baseline Risk Assessment.

Agreement 6: RL, EPA, and Ecology agreed that Multi Incremental Sampling (MIS) soil data already collected for the River Corridor Baseline Risk Assessment may be used in the WAC 173-340 (MTCA) scenarios.

Agreement 7: RL, EPA, and Ecology agreed that the reference data already collected for the 100 and 300 Areas and Inter Areas are adequate for use in identifying COCs and for determining incremental risk. RL, EPA, and Ecology agreed that additional data and evaluations of reference sites would be helpful, and to include additional relevant reference site data (e.g., off-site reference sites sampled for the Central Plateau Ecological Risk Assessment)..

100/300 AREA GROUNDWATER

Attachment 2 provides a status or information. This item will be discussed at the next Unit Manager Meeting.

Agreement: Attachment 3 (TPA-CN-187) documents approval from RL, EPA, and Ecology regarding changes to the *Interim Action Waste Management Plan for the 100-HR-3 and 100-KR-4 Operable Units*, DOE/RL-97-01, Rev. 5. The change involved the addition of 27 aquifer tubes to Appendix A, Table A-2.

GROUNDWATER/SOURCE INTEGRATION

This item will be discussed at the next Unit Manager Meeting; no updates were provided.

100/300 AREA FIELD REMEDIATION CLOSURE

This item will be discussed at the next Unit Manager Meeting; no updates were provided.

Attachments 4 documents approval by EPA for backfilling several waste sites.

Agreement: Attachment 4 documents EPA approval to proceed with backfilling the following waste sites: a) 118-F-2 burial ground, b) 118-F-5 burial ground, c) 100-F-26:14 116-F-5 influent pipelines, d) 118-F-8:4 fuel storage basin, and e) 118-B-1 burial ground.

DEACTIVATION, DECONTAMINATION, DECOMMISSION, DEMOLITION (D4)/ INTERIM SAFE STORAGE (ISS)

This item will be discussed at the next Unit Manager Meeting; no updates were provided.

MISSION COMPLETION PROJECT

This item will be discussed at the next Unit Manager Meeting; no updates were provided.

Agreement: Attachment 5 (TPA-CN-183) documents RL, EPA, and Ecology approval regarding changes to the *100 Area and 300 Area Component of the River Corridor Baseline Risk Assessment Sampling and Analysis Plan*, DOE/RL-2005, Rev. 1. The change involved additional sculpin and sediment sampling to support the risk assessment, and to correct the detection levels for PCB Aroclor mixtures.

SPECIAL TOPICS

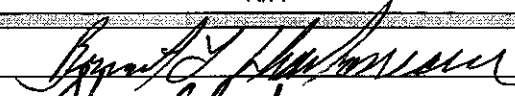
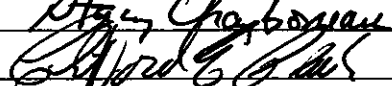
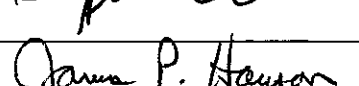
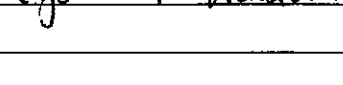
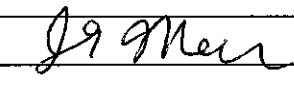
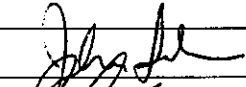




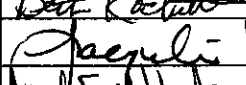
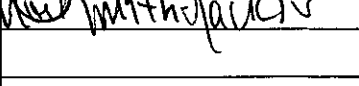

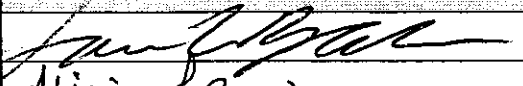
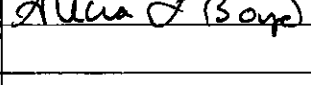
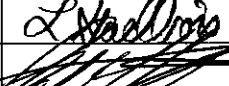
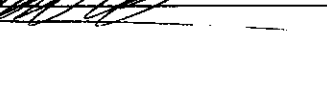
No issues were identified, no agreements were documented, and no actions were documented.

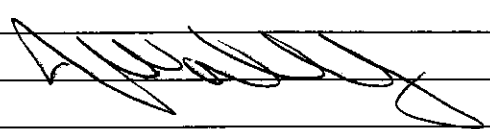
Attachment A

100/300 AREA UNIT MANAGER MEETING

ATTENDANCE AND DISTRIBUTION

October 11, 2007

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Attachment B

Attachment C

100/300 Area UMM

Action List

October 11, 2007

Open (O)/ Closed (X)	Action No.	Co.	Actionee	Project	Action Description	Status
X	100-003	RL	K. Bazzell	Field Remediation Closure	EPA and Ecology request DOE prepare a schedule for cleanup of the 200-CW-3 waste sites listed in the 100 Area Remaining Site Record of Decision.	Open: 7/13/06; Action: Closed 12/14/2006.
X	100-004	WC	L. Dittmer	Sample Design and Cleanup Verification	Present an errata sheet to provide consistent tritium cleanup levels between the 100 Area Burial Ground SAP and the 100 Area SAP.	Open: 7/31/06; Action: Closed 11/9/2006.
X	100-005	RL	K. Bazzell	General RCCC	EPA and Ecology request a meeting with the DOE person who can approve/disapprove language in the 100 Area Remedial Design Report. (Action associated with a proposed revision to the RDR to include descriptive language on ecorisk screening.)	Open: 7/13/06; Action: Closed 11/9/2006.
X	100-005B	EPA	J. Zeisloft	General RCCC	Revise the 100 Area RDR to include more specific language on the methodology and process for conducting ecological risk screening during closeout process.	Open: 9/14/06; Action: After several attempts to reach agreement, a workshop was scheduled with RL, EPA, and Ecology on August 21, 2007 to resolve. Item closed at 9/13/07 UMM.
X	100-006	RL	J. Zeisloft	100-K Field Remediation	RL to provide EPA and Ecology a copy of the NorthWind Characterization Report for 118-K-1.	Open: 7/13/06; Action: Completed 10/26/06
X	100-007	RL	J. Zeisloft	100-K Field Remediation	RL provide EPA and Ecology the status of the AMEC Report on 118-K-1.	Open: 7/13/06; Closed: 8/10/06 Action did not occur

100/300 Area UMM

Action List

October 11, 2007

Open (O)/ Closed (X)	Action No.	Co.	Actionee	Project	Action Description	Status
X	100-008	RL	K. Bazzell	Field Remediation	Provide WCH direction to evaluate other, existing, options for handling bottles containing liquids that are unearthed during remedial actions. Evaluate what is being done at other sites (Brookhaven; Sandia; DOE Lessons Learned website); evaluate how HAZM	Open: 9/14/06; Action: Completed 10/2/06
X	100-009	RL	R. Guercia	100-K D4	Send a copy of a building completion report (a quarterly report prepared to satisfy the DOE Order to take a facility "off the books.") as an alternate format of retrievable documentation.	Open: 9/14/06; Action: Complete 9/15/06
X	300-002	PN	B. Peterson M. Hartman	300-FF-5 Groundwater	Invite Jacqui Shea (Ecology), Alica Huckaby (Ecology), Alicia Boyd (EPA) to the September 300 Area aquifer tube sampling event.	Open: 7/13/06; Action: Completed 9/5/06
X	100-110	ECY	J. Price	100-H	John Price (Ecology) will send Kent Westover (RL) an email after looking at the information on the 116-H-4 table provided at the 10/12/06 UMM.	Open: 10/12/06; Action: Completed 10/13/06
X	100-111	RL	K. Westover	RCC General	RL shall propose a process for resolving sampling approaches where Ecology and RL differ, and multiple attempts at a technical level are exchanged without resolution.	Open: 10/12/06; Action: Ecology and RL agreed to close item; action closed 2/8/07.
X	100-112	RL	B. Charboneau	100-HR-3	RL will respond to Ecology's email request on the data and analysis request regarding the 100-HR-3 system.	Open: 10/12/06; Action: Data was provided, & Ecology is reviewing. On 4/12/07 this action was closed and a new action item generated (see action item 100- 133).

100/300 Area UMM

Action List

October 11, 2007

Open (O)/ Closed (X)	Action No.	Co.	Actionee	Project	Action Description	Status
X	100-113	ECY	J. Price	100-HR-3	John Price will respond to RL's request to submit an annual report for the ISRM system versus a quarterly report. However, monthly data will still be sent to Ecology.	Open: 10/12/06; Action: Ecology approval documented in minutes. Completed 11/9/2006.
X	100-114	RL	B. Charboneau	Unknown	RL will send Ecology the schedule for the EM-22 Treatability Test Report	Open: 10/12/06; Action: Schedule entered into minutes. Completed 11/9/2006.
X	100-115	RL	B. Charboneau	100-D	RL will send Ecology the plans/actions for the 182-D Reservoir.	Open: 10/12/06; actions documented in minutes. Completed 11/9/2006.
X	100-116	RL	J. Zeisloft	100-D	RL and Ecology shall talk about the liquid removal from the 100-D-56 pipe.	Open: 10/12/06; Action: Completed 11/9/2006
X	100-117	ECY	J. Price	100-N	Ecology shall review the revegetation proposal for the 116-N-1 site and provide feedback.	Open: 10/12/06; Action: Proposal approved in minutes. Completed 11/9/2006.
X	100-118	ECY	J. Price	100-D	Ecology shall review the 100-D-56 chromium treatment plan	Open: 10/12/06; Action: Ecology submitted comments. Completed 11/9/2006.
X	300-003	RL	C. Smith	300-FF-2	RL shall provide EPA with the contamination control measures to move the MO-905 trailer within the onsite area.	Open: 10/12/06; Action: Completed 10/18/2006

100/300 Area UMM
Action List
October 11, 2007

Open (O)/ Closed (X)	Action No.	Co.	Actionee	Project	Action Description	Status
X	100-119	RL	J. Morse	100-HR-3	RL (John Morse) will set up a meeting with Ecology (John Price) on overall long-term picture for 100-HR-3.	Open: 11/9/06; Action: RL is scheduling a meeting in March 2007. On 4/12/07 this action was closed and a new action item generated (see action item 100-133).
X	100-120	RL	J. Morse	100-HR-3	RL (John Morse) will provide Ecology (Mandy Jones) with the 100-D well installation schedule, as well as the EM-22 Treatability Test well installation plans.	Open: 11/9/06; Action: RL to set up meeting in March 2007 to provide the schedule. On 4/12/07 this item was closed.
X	100-121	RL	J. Morse	100-FR-3	RL (John Morse) will provide EPA (Rod Lobos) with the Contaminates of Concern (COCs) plot for each well in 100-FR-3, including a list of wells sampled in October 2006 and those scheduled to be sampled in November 2006.	Open: 11/9/06; Action: Closed 12/14/2006
X	100-122	RL	J. Zeisloft	100-D	RL (Jamie Zeisloft) will set up a meeting with Ecology on the holistic 100-D characterization approach.	Open: 11/9/06; Action: Meeting was held; action closed 2/8/07.
X	100-123	RL	J. Zeisloft	100-D	RL (Jamie Zeisloft) will provide Ecology (Mandy Jones) with the overall 100-D project remediation schedule.	Open: 11/9/06; Action: Closed 12/14/2006
X	300-004	RL	C. Smith	618-10/11	RL (Chris Smith) will set up a meeting with EPA to discuss the M-16-67 milestone for 618-10/11 to ensure there are no issues with the design solution and completing the milestone.	Open: 11/9/06; Action: Closed 12/14/2006

100/300 Area UMM

Action List

October 11, 2007

Open (O)/ Closed (X)	Action No.	Co.	Actionee	Project	Action Description	Status
X	100-124	RL	K. Westover	General RCC	RL to evaluate whether it endorses use of analogous sites for site closeout (proposed by WCH), and communicate its opinion to Ecology and EPA. As a first step, RL will set up a meeting to focus on a current example of a waste site being proposed for closeout using this approach.	Open:12/14/06; Action: Item was closed 7/12/07.
X	100-125	RL	K. Bazzell	General RCC	RL to meet with EPA and Ecology on what systems or processes are in place to track remedial action costs for waste site closeout. Remedial Action Closeout Reports will capture this information but EPA and Ecology want to hear an update since the development of the 300-FF-1 Remedial Action Report (DOE/RL-2004-74, Rev. 0).	Open:12/14/06; Action: A summary was provided at the May 2007 UMM; closed 5/10/07.
X	100-126	RL	J. Morse	General RCC	RL (John Morse) will provide EPA with "DAVE" access.	Open:12/14/06; Action: Closed 1/11/07
X	100-127	RL	C. Smith	100-B/C	RL (Chris Smith) will provide EPA with the spent nuclear fuel disposition schedule for 100-B/C.	Open:12/14/06; Action: Closed 1/11/07
X	300-005	RL	R. Guercia	300 Area D4	RL shall provide EPA with status on the 324/327 building demolition strategy.	Open:12/14/06; Action: Closed 1/11/07
X	300-006	RL	R. Guercia	300 Area D4	The Tri-Parties will develop a process for closing out D4 actions where no known waste site is under the building, and no releases to soil are documented or expected based on existing data.	Open: 1/11/07; Action: RL will set up a meeting with EPA and Ecology to discuss. On 4/12/07 this item was closed.

100/300 Area UMM

Action List

October 11, 2007

Open (O)/ Closed (X)	Action No.	Co.	Actionee	Project	Action Description	Status
O	100-128	RL	R. Guercia	100-N	RL will schedule a briefing with Ecology in October 2007 on the piping near the 1310 and 1322-NB buildings.	Open: 1/11/07; Action: The RL point of contact person changed and the action item revised on 7/12/07.
X	100-129	RL	J. Morse	100-K	RL (John Morse) will provide EPA with a copy of "The KW Pump and Treat System Remedial Design and Remedial Action Work Plan, Supplement to the 100-KR-4 Groundwater Operable Unit Interim Action," DOE/RL-2006-52, Rev. 1.	Open: 1/11/07; Action: Closed 1/11/07
O	100-130	RL	J. Zeisloft	100 Areas	EPA and Ecology to discuss footnote in Cleanup Verification Packages/Remaining Site Cleanup Verification Packages (CVP/RSVPs) for immobile contaminants as related to the footnote stated in the Remedial Design Report/Remedial Action Work Plan for immobile contaminants.	Open: 1/11/07; Action: After several attempts to reach agreement, a workshop was scheduled with RL, EPA, and Ecology on August 21, 2007 to resolve.
X	100-131	RL	C. Smith	100 Areas	Ecology requests RL for an updated schedule on remediation designs and sampling work instructions through June 2009.	Open: 1/11/07; Action: Information provided; action closed 2/8/07.

100/300 Area UMM

Action List

October 11, 2007

Open (O)/ Closed (X)	Action No.	Co.	Actionee	Project	Action Description	Status
X	100-132	RL	C. Smith	100 Areas	RL will develop proposed changes to the verification sampling approach for tritium in soil.	Open: 2/8/07; Action: After several attempts to reach agreement, a workshop was scheduled with RL, EPA, and Ecology on August 21, 2007 to resolve. Item closed at 9/13/07 UMM.
X	300-007	RL	C. Smith	300 Area	EPA requested a meeting on 618-7 to be scheduled, and to include the Washington State Department of Health.	Open: 2/8/07; Action: Meeting was held and this item was closed on 4/12/07.
X	100-133	RL	J. Hanson	100-HR-3	RL and Fluor Hanford will schedule a meeting with Ecology to decipher data trends, and future plans for the chromium plume at the 100-H reactor.	Open: 4/12/07; Action: At the 5/19/07 UMM, RL stated a meeting has been scheduled for May 22. Meeting occurred; this item closed on 6/7/07.
O	300-008	RL	R. Guercia	100/300 Area	RL shall develop the instructions for documenting D4 completions in the 100 and 300 Areas where no known waste site is under the building, and no releases to soil are documented or expected based on existing data. These instructions shall be added into the respective Removal Action Work Plans after review and approval from the respective lead regulatory agency for the specific Removal Action Work Plans in the 100 and 300 Areas.	Open: 4/12/07; Action: Ongoing action, and are still under development.

100/300 Area UMM

Action List

October 11, 2007

Open (O)/ Closed (X)	Action No.	Co.	Actionee	Project	Action Description	Status
X	300-009	RL	J. Sands	300 Area	RL will follow up with EPA on any past or future land evaluations of the southern 300 Area referred to as the "triangle area" where new construction is starting.	Open: 4/12/07; Action: Closed on 7/12/07.
O	100-134	RL	J. Zeisloft	100-D Area	RL will respond to Ecology's electronic mail message sent on April 19, 2007 regarding the 126-D-1 Ash Pit.	Open: 5/10/07; Action: RL provided Ecology data on July 2, 07. Ecology sent comments, and is awaiting a response.
X	100-135	RL	C. Smith	100 Areas	RL will provide a draft of the 100 Area Explanation of Significant Difference (ESD), which adds waste sites, to EPA and Ecology for review.	Open: 6/14/07; Action: A draft of the ESD is nearly complete, and a briefing to EPA and Ecology still needs to occur. Item closed at 9/13/07 UMM.
X	100-136	RL	C. Smith	100 Areas	RL will provide EPA and Ecology with the schedule for the next revision of the 100 Area Remedial Design Report/Remedial Action Work Plan.	Open: 6/14/07; Action: The schedule will be provided in August 07. Item closed at 9/13/07 UMM.
X	100-137	Ecology	J. Price	100-D	Ecology is sending RL a letter requesting additional work modification (additional sampling) as described in the Hanford Federal Facility Agreement and Consent Order for the 100-D-30 and 100-D-56 sites.	Open: 7/12/07; Action: Ecology has a draft letter, but plans to discuss with S. Charboneau before sending. Item closed at 9/13/07 UMM.
X	100-138	RL	J. Hanson	100-K	RL will provide EPA with the next steps regarding the recent discovery of chromium at the KE area; specifically the results for well 199-K-141 and 199-K-142.	Open: 7/12/07; Action: A meeting was held on 7/26, and this action is closed.

100/300 Area UMM
Action List
October 11, 2007

Open (O)/ Closed (X)	Action No.	Co.	Actionee	Project	Action Description	Status
X	100-139	RL	J. Hanson	100-K	RL will provide EPA with a copy of the 30% design for the 100-KR-4 expansion.	Open: 7/12/07; Action: A meeting was held on 7/26, and this action is closed.
O	100-140	RL	S. Weil	100/300 Area	EPA requested information for each operable unit on the following areas: 1) total operable unit acreage/boundary map, 2) waste site acreage within each operable unit, and 3) acreage within each operable unit that is cleaned up. Additional discussions are expected on this subject.	Open: 7/12/07; Action: EPA sent RL a letter regarding this request. EPA contacted RL regarding the urgency of the request, and this is on schedule.
X	100-141	RL	J. Hanson	100/300 Area	RL shall set-up a meeting with EPA and Ecology regarding aquifer tube installation across the entire site.	Open: 8/9/07; Action: Item closed at 10/11/07 UMM.
X	100-142	RL	J. Hanson	100-D	RL shall provide Ecology with a copy of the direction letter sent to the operating contractor regarding the operation changes to the 182-D reservoir to further minimize leakage.	Open: 8/9/07; Action: Item closed at 9/13/07 UMM.
O	100-143	RL	J. Zeisloft	100-D	RL, with its contractors, will meet with Ecology to discuss their comments on the 100-D Orphan Site Report, and finalize the list of sites.	Open: 9/13/07; Action:
X	100-144	RL	J. Morse	100 Areas	Ecology shall provide RL with a list of where known data is missing from the Hanford Environmental Information System (HEIS) database.	Open: 9/13/07; Action: Item closed at 10/11/07 UMM.
O	100-145	RL	J. Hanson/J. Zeisloft	100-D	RL (groundwater staff) and RL (river corridor staff) shall provide each other their respective schedules regarding drilling and cleanup actions to assist in coordination efforts for the portion of the 100-D-56 pipeline that requires backfill prior to well installation.	Open: 9/13/07; Action:

100/300 Area UMM
Action List
October 11, 2007

Open (O)/ Closed (X)	Action No.	Co.	Actionee	Project	Action Description	Status
X	100-146	RL	J. Hanson	100-K	RL shall set-up a meeting with EPA to discuss the path forward on the high chromium plume at the 100-K Area.	Open: 9/13/07; Action: Item closed at 10/11/07 UMM.
O	100-147	RL	C. Smith	100 Areas	RL shall provide EPA and Ecology with a red-line version of Appendix G of the 100 Area Remedial Design Report/Remedial Action Work Plan, Rev. 5 to assist in reviewing the proposed changes.	Open: 10/11/07; Action:

Attachment D

100/300 Area Unit Manager Meeting
October 11, 2007
Washington Closure Hanford Building
2620 Fermi Avenue, Richland, WA 99354
Room C209
1:00-4:30 p.m.

1:00 - 4:15 p.m.

Executive Session (Tri-Parties Only):

- MP-14 Streamlining
- 100 Area Remedial Design Report/Remedial Action Work Plan Appendix G
- Point and Non-Point Source Emissions for CERCLA
- Framing Global Issues for Risk Assessment

Note: Contractors may be requested to participate.

4:15 p.m. - 4:20 p.m.

Administrative:

- Approval and signing of previous meeting minutes (August 2007)
- Update to Action Items List
- Next UMM (10/11/2007, Room C209)

4:20 - 4:30 p.m.

Open Session: Project Agreements Only:

- 100/300 Area Groundwater (Jim Hanson/Jane Borghese)
- 100/300 Area Field Remediation and Closure (FR)
- D4/ISS
- Special Topics

Attachment 1

Key Issues and Recommendations for Unit Manager's Meeting Executive Session, October 11, 2007

At a series of meetings with the Tri Parties and WCH, major issues pertaining to comments submitted during the Draft A RCBRA review were presented for discussion and resolution. These issues need to be clearly resolved in order to respond to comments submitted on the RCBRA and resume work on the risk assessment report. The October Unit Manager's Meeting was selected as the forum for resolution.

Issue #1: Should WAC 173-340 Risk Assessment Approaches and Risk Scenarios be Addressed in the Risk Assessment?

Summary

- The RCBRA is intended to be a CERCLA baseline risk assessment based on EPA guidance.
- Differences in EPA versus Ecology regulatory approach led to hundreds of comments on the RCBRA Draft A.

Recommended solution

- Scope and approach of RCBRA should be based primarily on EPA guidance.
- WAC 173-340 and other ARARs should be addressed in the RI/FS documents.

Issue #2: The Risk Assessment Needs to Accurately Evaluate COPCs

Summary

- The assessment is overly complex and not focused to recognized Hanford risk drivers.
- WAC 173-340 requirements for statistical calculation were given priority over use of modern and accepted methods, resulting in skewed values used in the assessment.
- Risks were likely overstated due to risks posed by non-indicator contaminants (beyond the scope of the SAP), resulting poor detection limits, and/or statistical treatment of data sets.

Recommended solution

- Report total risk and Hanford derived risk.
- Quantify risks for only a subset of all detected analytes based on expected Hanford contaminants (per the DQO and SAP) and sampling results.
- Expand the data evaluation options to include various accepted methods to identify COPCs using background data, reference site data, detection frequency, detection across media and sites, and process knowledge.
- Use the most recent science to calculate statistics for the risk assessment, not prescriptive application of WAC 173-340 requirements.

Issue #3: The Reference Sites are Underutilized in the Risk Assessment

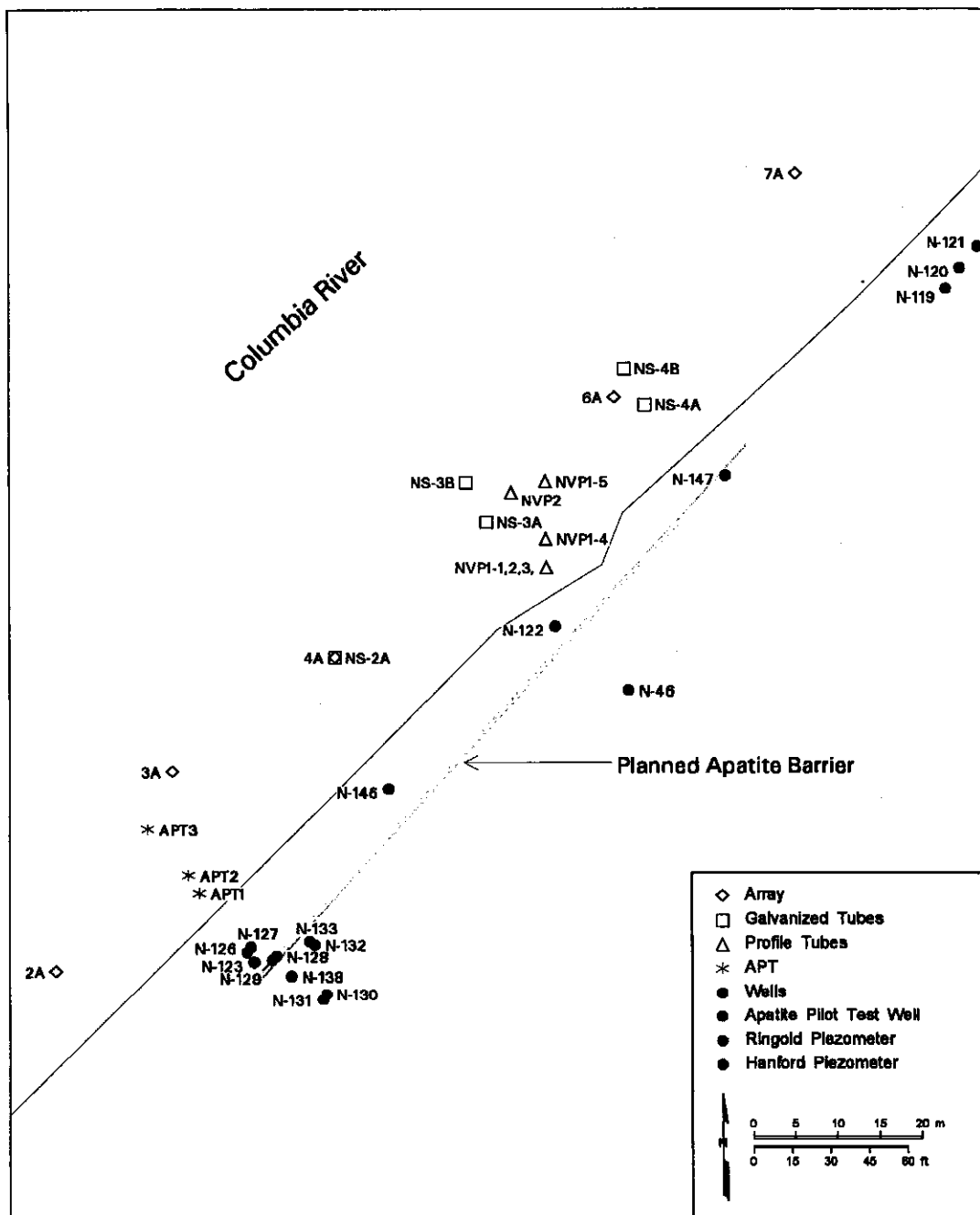
Summary

- Reference sites were a key part of the ecological risk assessment. They were intended to compare a minimally contaminated or not contaminated site to waste sites (SAP). The reference site values should be equivalent to local background and were used as a point of comparison in the human health risk assessment.
- Without agreement on reference sites, it is impossible to develop conclusions for the ecological risk assessment.

Attachment 2

100/300 Areas Unit Managers Meeting,
October 11, 2007

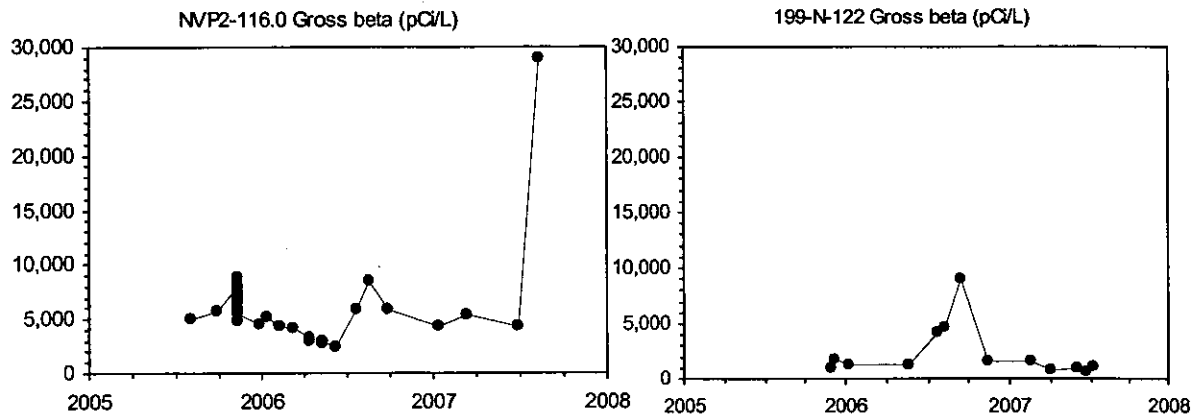
100-NR-2 Groundwater OU - Russ Fabre



Gross beta increased sharply in aquifer tubes near the apatite barrier in August. The tubes with the increases are all located in a group between Array-4A and Array-6A. The highest concentrations were in some of the "vertical profile" tubes (see table and graphs). Beta concentrations in shoreline monitoring wells downgradient of the apatite barrier (199-N-122, -146, and -147) are all much lower. The tubes were sampled again in September (for beta, Sr-90 and other constituents) so we can follow the trends.

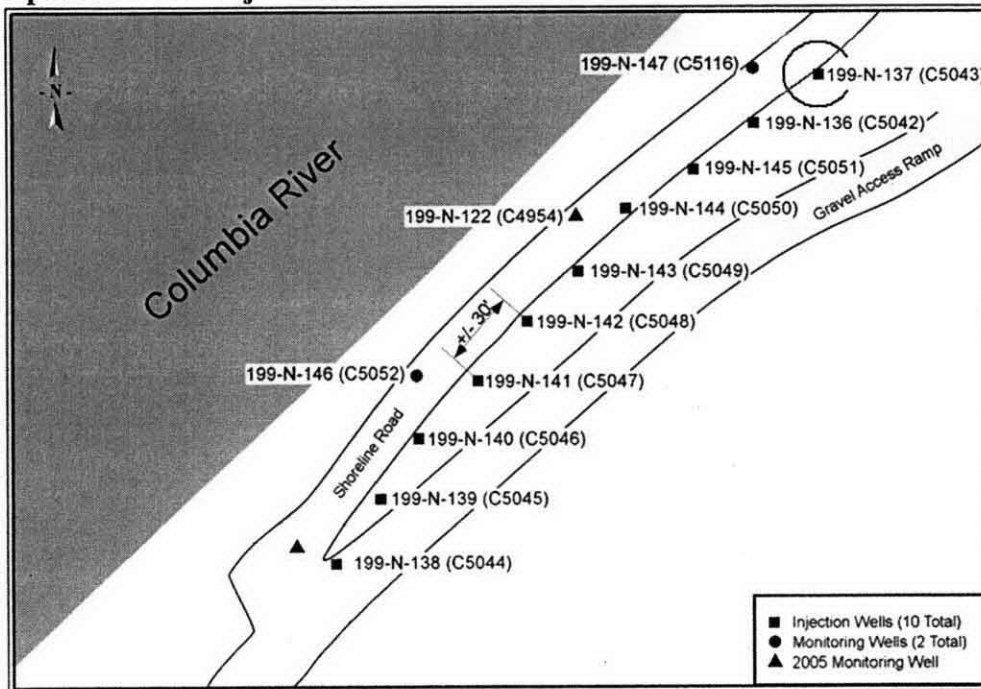
**100/300 Areas Unit Managers Meeting,
October 11, 2007**

Tube	Gross Beta, pCi/L	Sr-90, pCi/L	Gross Beta, pCi/L	Sr-90, pCi/L
	June 26, 2007		August 9, 2007	
Array-4A	3,100	1,300	7,700	4,500
Array-6A	1,100	360	2,700; 2,600 (dupes)	1,200
NVP1-1	15	--	190	--
NVP1-2	30	--	820	--
NVP1-3	1,500	--	1,600	--
NVP1-4	3,200	--	7,700	--
NVP1-5	6,400	--	18,000	--
NVP2-116.3	6,200	--	15,000	--
NVP2-116.0	4,300	--	29,000	15,000
NVP2-115.7	7,500	--	25,000	--
NVP2-115.4	5,800	--	14,000	--
NVP2-115.1	8	--	6.6	--



**100/300 Areas Unit Managers Meeting,
October 11, 2007**

Apatite Barrier Injections



Apatite Barrier Injections

- All Injections completed July 12, 2007.

Barrier Preliminary Performance on Sr 90 reduction

- Anticipate continued reductions as the apatite forms
- Sampling for Sr⁹⁰ reduced to monthly intervals
- Draft Treatability Test Plan for high concentration injection in preparation

Compliance Well Number	Baseline Measurement/Date	August UMM Report	Latest Measurement/Date
199-N-123	1040 pCi/L 4/12/2006	380 pCi/L 8/10/2007	Awaiting Sep. Results
199-N-138	811 pCi/L 4/26/2006	90 pCi/L 8/10/2007	Awaiting Sep. Results
199-N-137	1000 pCi/L 7/07/2006	480 pCi/L 8/10/2007	Awaiting Sep. Results
199-N-136	1800 pCi/L 7/07/2006	430 pCi/L 8/10/2007	Awaiting Sep. Results
199-N-139	4500 pCi/L 7/07/2006	190 pCi/L 8/10/2007	Awaiting Sep. Results
199-N-140	2000 pCi/L 7/07/2006	200 pCi/L 8/10/2007	Awaiting Sep. Results
199-N-141	1000 pCi/L 7/07/2006	510 pCi/L 8/10/2007	Awaiting Sep. Results
199-N-142	2500 pCi/L 7/11/2006	380 pCi/L 8/10/2007	Awaiting Sep. Results
199-N-122	1100 pCi/L 7/11/2006	1200 pCi/L 8/10/2007	Awaiting Sep. Results
199-N-143	2300 pCi/L 7/11/2006	1700 pCi/L 8/10/2007	Awaiting Sep. Results
199-N-144	1600 pCi/L 7/11/2006	1500 pCi/L 8/10/2007	Awaiting Sep. Results
199-N-145	4700 pCi/L 7/11/2006	250 pCi/L 8/10/2007	Awaiting Sep. Results
199-N-146	660 pCi/L 7/11/2006	1100 pCi/L 8/10/2007	Awaiting Sep. Results
199-N-147	720 pCi/L 7/11/2006	730 pCi/L 8/10/2007	Awaiting Sep. Results

**100/300 Areas Unit Managers Meeting,
October 11, 2007**

100-KR-4 Groundwater OU - Ron Jackson

- Remediation Treatment Status
 - For the period of August 27-September 30, 2007:
 - System operated normally except treatment capacity was reduced because one of the feed pumps was out of service from August 19-October 2, 2007. Treatment system was compensated by temporarily taking extraction wells 199-K-112, K-118, and K-120 off line for 10 to 20 days. Extraction well 199-K-119 has been off line from August 21-October 8 due to feed-pump problems and solenoid problems.
 - Total average flow through the system was approximately 185 gpm.
 - Average influent hexavalent chromium concentration was 0.052mg/L.
- KR-4 Expansion
 - The draft RDR/RAWP supplement is in RL review (DOE-RL-2006-75, Decisional draft).
 - The 90 percent design package has been completed.
- KW Groundwater Remediation
 - For the period of August 27-September 2007:
 - System operated normally.
 - Total average flow through the system was approximately 98 gpm.
 - Average influent hexavalent chromium concentration was 0.107 mg/L.

100-K Area Drilling Status—Ron Jackson (FH)

- Drilling commenced during the week of October 1 for the new extraction and injections wells associated with the K-expansion.

100-KR-4: K-Basins Monitoring Task—Bob Peterson (PNNL-updated 10/09/07)

- Leak Detection Monitoring Results:
 - The most recent results for routine quarterly sampling of wells in the K-Basins network are for samples collected in late July 2007. Results are consistent with trends and expectations.
 - The most recent results for monthly sampling at three wells close to the KE Basin (199-K-27, 199-K-29, and 199-K-109A) are for samples collected in early September 2007. Results are on trend.
 - There is no evidence to indicate groundwater impacts attributable to leakage of shielding water from either Basin.
- Monitoring Well Network:
 - Routine quarterly sampling of K-Basins network wells is currently underway during early October. The monthly sampling scheduled near KE basin is coordinated with the quarterly event.
 - New wells 199-K-141 and K-142, located between KE reactor and the Columbia River, were sampled on October 8. The first samples from these wells showed unexpected results for chromium and tritium. No new information at this point to explain the anomalies. Calculated groundwater flow direction, in the vicinity of 199-K-141 is northwesterly direction based on heads measured in monitoring wells K-111, K-141, and K-30.
 - The tritium concentration for the most recent sample from 199-K-106A, located near the KW reactor and downgradient of the former KW condensate crib, is dramatically lower than for previous samples. The current concentration (~30,000 pCi/L) is comparable to the pre-2001 concentrations. (Note: Starting in 2001, concentrations began rising at this well

**100/300 Areas Unit Managers Meeting,
October 11, 2007**

and reached a peak value exceeding 2,000,000 pCi/L. No clear explanation is available, but the KW fuel storage basin is not a likely source)

- Reporting:
 - No new reports. Most recent quarterly report was for April, May, and June 2007 (PNNL-16766).

100-HR-3 Groundwater OU - Ron Jackson and Scott Petersen

- Remediation Treatment Status
 - For the period August 27-September 30, 2007:
 - The system operated normally.
 - Total average flow through the system was approximately 152 gpm. This month's treatment capacity is lower (25 gpm) than reported last month due to low river water stage fluctuations causing some of the wells to shut down. Extraction well 199-H4-64 has been out of service since September 7 due to separation in the power conduit.
 - Average influent hexavalent chromium concentration for H Area was approximately less than 0.016 mg/L.
 - Average influent hexavalent chromium concentration for D Area was approximately 0.137 mg/L.
- DR-5 Treatment Status
 - For the period August 27-September 30, 2007:
 - System operated normally.
 - Total average flow through the system was approximately 41 gpm. Extraction wells D5-20 and D5-39 were off line due to power/communication cable problems. D5-20 and D5-39 returned to service on September 4 and September 21, respectively. Extraction well D5-32 has been off line since September 22 due to failure of the pump problems.
 - The average influent hexavalent chromium concentration was approximately 0.314 mg/L.
 - "Horn" Investigation
 - As of October 2, six wells (C5657, C5660, C5661, C5665, C5667, and C5687) have been constructed, developed, and accepted, one borehole (C5687) is being constructed, and one borehole (C5663) has been constructed since field activities began on August 23.
 - Working with DOE and State organization to receive cultural resources review clearance on October 15, 2007 to proceed with the aquifer tubes as well as the completion of archeological excavations, construction of the remaining well pads and access roads.
- Summary of ISRM Status
 - Chromium concentrations in groundwater sampled from select ISRM injection wells are about the same as those collected last September.
- EM-22 Technology Developments
 - Injecting micron-size iron into selected ISRM boreholes: MSE-Technology Applications has identified eight iron compounds (out of an initial list of 30) that may be suitable for injecting into the ISRM barrier. A new plan for testing these compounds is in review. The plan is to first perform some simple batch tests, followed by screening-level injection and geochemical tests. After each of these the data will be evaluated to see if any of the iron compounds can be screened out. A more elaborate series of column tests will follow the

**100/300 Areas Unit Managers Meeting,
October 11, 2007**

screening tests, hopefully on only one or two of the most promising iron compounds. The field test, originally scheduled for July, 2007, has been postponed.

- EC Treatability Test- Completed two month 24 hour continuous testing of the EC system. Currently, testing is being conducted to evaluate the cause of the well plugging and optimization of the solid separation system. Due to upcoming cold weather conditions, the testing will be terminated in late October. Per the test plan, the treatability test report is due in March 2008..
- The seven chromium source investigation wells are being sampled for hexavalent chromium every other week. The four new wells planned to further refine the chromium source in this area will likely be drilled in December, after WCH is finished with excavations and able to backfill part of the 100-D-56 trench.
- EM-20 has committed their support for a chromium source investigation of the northern 100-D plume. Planning for this project will begin in October
- Molasses was injected September 25-29.

HR-3/KR-4 Waste Management Plan- John Winterhalder

- A revision to the HR-3/KR-4 Waste Management Plan is being worked. The plan has been through internal RL and EPA reviews. It is currently with Ecology for review.
- To allow FH to proceed with the installation of the 27 aquifer tubes in the Horn area, a TPA CN 187 and the affected Table A-2 from App. A of the HR-3/KR-4 WMP requires the approval of EPA and Ecology. This change adds 27 aquifer tubes to the list of tubes and seeps, pending approval of revision 6 of the WMP that is currently being reviewed by Ecology.

300-FF-5 Operable Unit—Bob Peterson and Ron Smith (PNNL)

- Operations and Maintenance Plan Activities
 - *300 Area Sampling and Analysis:* Results are now available for samples collected during the semi-annual event in June 2007. Available results are consistent with established trends and expectations.
 - *618-10 and 618-11 Subregions:* No new information to report. Most recent results are for samples collected in late July/early August, and are consistent with historical trends.
- Phase III Feasibility Study
 - *Conceptual Site Model Report:* Draft report is complete and undergoing PNNL internal peer review. Release as a PNNL report is planned for early October, 2007.
 - *Groundwater Flow Model:* No new information to report.
 - *Review Comments on Risk Report and LFI Report:* External comments have been reviewed and appropriate modifications to each report are being made.
- Other Activities
 - *VOC Investigation:* Drilling has been completed for the first of three additional characterization boreholes and the borehole has been completed as a water table monitoring well. The borehole (399-2-5) was drilled in the southern portion of the former South Process Pond. Rapid turnaround results for most samples collected during drilling showed no detectable VOCs; where detections occurred, they were in the less than 1-ug/L range. Results for uranium analysis are not yet available. The second borehole will be drilled at the southernmost location (399-4-14), with drilling starting on October 9, 2007. The initial sample results indicate very small amounts of TCE concentrations in the well. Drilling for the second borehole began on October 8. The second borehole (399-4-14) is located at the northwest corner of the 337 building parking lot.

**100/300 Areas Unit Managers Meeting,
October 11, 2007**

- *Treatability Testing (EM-22)*: Monitoring continues following the June 2007 injection of polyphosphate solutions. Samples collected August from aquifer tubes downgradient of the test site showed evidence of the test (i.e., elevated bromide and chloride at tube sites AT-3-3 and AT-3-4).

100-BC-5 Operable Units—Mary Hartman

- New wells 199-B8-7 and 199-B8-8 were sampled 9/10/07. They will be sampled monthly from now until December and quarterly thereafter. Preliminary Cr6+ results are available and the results were <5 ug/L for 199-B8-7 and 7 ug/L for 199-B8-8. Results for other constituents will be reported within the standard 45 day turnaround time.
- Other wells are scheduled for annual sampling in January 2008.

100-FR-3 Operable Unit—Mary Hartman

- FY 2008 sampling scheduled for October and is beginning this week.

Attachment 3



**Change Notice for Modifying Approved Documents/ Workplans
In Accordance with the Tri-Party Agreement Action Plan,
Section 9.0, Documentation and Records**

Change Number	Document Submitted Under Tri-Party Agreement Milestone	Date:	
TPA-CN-187	<u>N/A</u>	October 3, 2007	
Document Number and Title: <i>Interim Action Waste Management Plan for the 100-HR-3 and 100-KR-4 Operable Units, DOE/RL-97-01, Rev. 5</i>		Date Document Last Issued: June 2005	
Originator: John Winterhalder		Phone: 372-8144	
Description of Change: Update of Appendix A, 100-HR-3 and 100-KR-4 Well Name, Aquifer Sampling Tube, and Seep Lists to include 27 aquifer tubes in the 100-HR-3 Area.			
<p><u>B Charboneau</u> and <u>J Price and L Gadbois</u> agree that the proposed change modifies an approved RL Lead Regulatory Agency</p> <p>workplan/document and will be processed in accordance with the Tri-Party Agreement Action Plan, Section 9.0, <i>Documentation and Records</i>, and not Chapter 12.0, <i>Changes to the Agreement</i>.</p> <p>Appendix A, Table A-2, "100-HR-3 Operable Unit Aquifer Tube Sampling and Seep List", of the above referenced plan has been modified to add 27 aquifer tubes to the list. These tubes are planned for construction/installation beginning about mid-October.</p> <p>Note: The affected page numbers are A-1 through A-4 and they are attached to this change form.</p>			
Justification and Impacts of Change:			
Revision 6 of the above referenced plan is in process but its review and approval will not be completed before construction of at least some of the aquifer tubes is scheduled to begin. The aquifer tube list updates made by this change will be reflected in Revision 6 of the waste management plan.			
Approval			
 RL Project Manager		<u>10/9/07</u> Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved
 Ecology Project Manager (HR-3 OU Lead)		<u>10/11/2007</u> Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved
 EPA Project Manager (KR-4 OU Lead)		<u>10-11-07</u> Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved

APPENDIX A**100-HR-3 AND 100-KR-4 WELL NAMES, AQUIFER SAMPLING TUBE,
AND SEEP LISTS****Table A-1. 100-HR-3 Operable Unit Well Name List.**

(This list will be updated as necessary, presented at the 100 Areas Unit Manager's Meeting,
and included in the UMM minutes)

- Shading indicates wells added for this change.

Well Name	Well Name	Well Name	Well Name	Well Name
199-D2-06	199-D4-31	199-D4-68	199-D5-36	199-D8-72
199-D2-08	199-D4-32	199-D4-69	199-D5-37	199-D8-73
199-D2-09	199-D4-33	199-D4-70	199-D5-38	199-D8-88
199-D2-11	199-D4-34	199-D4-71	199-D5-39	199-H3-2A
199-D3-02	199-D4-35	199-D4-72	199-D5-40	199-H3-2B
199-D3-03	199-D4-36	199-D4-73	199-D5-41	199-H3-2C
199-D3-04	199-D4-37	199-D4-74	199-D5-42	199-H3-03
199-D4-01	199-D4-38	199-D4-75	199-D5-43	199-H3-04
199-D4-02	199-D4-39	199-D4-76	199-D5-44	199-H3-05
199-D4-03	199-D4-40	199-D4-77	199-D5-86	199-H4-02
199-D4-04	199-D4-41	199-D4-78	199-D5-92	199-H4-03
199-D4-05	199-D4-42	199-D4-79	199-D5-93	199-H4-04
199-D4-06	199-D4-43	199-D4-80	199-D5-95	199-H4-05
199-D4-07	199-D4-44	199-D4-81	199-D5-97	199-H4-06
199-D4-08	199-D4-45	199-D4-82	199-D5-98	199-H4-07
199-D4-09	199-D4-46	199-D4-83	199-D5-99	199-H4-08
199-D4-10	199-D4-47	199-D4-84	199-D5-100	199-H4-09
199-D4-11	199-D4-48	199-D4-85	199-D5-101	199-H4-10
199-D4-12	199-D4-49	199-D4-86	199-D5-102	199-H4-11
199-D4-13	199-D4-50	199-D4-87	199-D5-103	199-H4-12A
199-D4-14	199-D4-51	199-D4-88	199-D5-104	199-H4-12B
199-D4-15	199-D4-52	199-D4-89	199-D5-106	199-H4-12C
199-D4-16	199-D4-53	199-D4-90	199-D5-119	199-H4-13
199-D4-17	199-D4-54	199-D4-91	199-D5-120	199-H4-14
199-D4-18	199-D4-55	199-D4-92	199-D5-121	199-H4-15A
199-D4-19	199-D4-56	199-D4-93	199-D5-122	199-H4-15B
199-D4-20	199-D4-57	199-D5-13	199-D8-04	199-H4-15C
199-D4-21	199-D4-58	199-D5-14	199-D8-05	199-H4-15CP
199-D4-22	199-D4-59	199-D5-15	199-D8-06	199-HR-15CQ
199-D4-23	199-D4-60	199-D5-16	199-D8-53	199-HR-15CR
199-D4-24	199-D4-61	199-D5-17	199-D8-54A	199-HR-15CS
199-D4-25	199-D4-62	199-D5-18	199-D8-54B	199-H4-16
199-D4-26	199-D4-63	199-D5-19	199-D8-55	199-H4-17
199-D4-27	199-D4-64	199-D5-20	199-D8-68	199-H4-18
199-D4-28	199-D4-65	199-D5-32	199-D8-69	199-H4-45
199-D4-29	199-D4-66	199-D5-33	199-D8-70	199-H4-46
199-D4-30	199-D4-67	199-D5-34	199-D8-71	199-H4-47
199-H4-48	699-88-41	699-94-41	699-96-49A	699-97-48C

Table A-1. 100-HR-3 Operable Unit Well Name List.

(This list will be updated as necessary, presented at the 100 Areas Unit Manager's Meeting, and included in the UMM minutes)

- Shading indicates wells added for this change.

Well Name	Well Name	Well Name	Well Name	Well Name
199-H4-49	699-89-35	699-94-43	699-96-49P	699-97-51A
199-H4-63	699-90-34	699-95-45	699-97-41	699-98-43
199-H4-64	699-90-37B	699-95-51	699-97-43	699-98-46
199-H4-65	699-90-45	699-96-43	699-97-43B	699-98-49
199-H5-1A	699-91-46A	699-96-44	699-97-43C	699-99-42
199-H6-1	699-92-49	699-96-45	699-97-45	699-101-48B
699-83-47	699-93-48A	699-96-49	699-97-48B	

Table A-2. 100-HR-3 Operable Unit Aquifer Tube Sampling and Seep List.

Shading indicates aquifer tubes added for this change

Aquifer Tubes					
35-D	45-S	57-D	AT-H-2-S	DD-41-1	DH-1451-2
35-M	46-D	57-M	AT-H-2-M	DD-41-2	C5632
35-S	47-D	57-S	AT-H-2-D	DD-41-3	C5633
36-D	47-M	58-D	AT-H-3-D	DD-41-4	C5634
36-M	48-D	58-M	AT-H-3-S	DD-42-1	C5635
36-S	48-M	58-S	DD-06-2	DD-42-2	C5636
37-D	48-S	59-D	DD-06-3	DD-42-3	C5637
37-M	49-D	59-M	DD-08-2	DD-42-4	C5638
37-S	49-M	59-S	DD-08-3	DD-42-4	C5639
38-D	49-S	60-D	DD-08-4	DD-43-1	C5640
38-M	50-D	60-M	DD-10-2	DD-43-2	C5641
39-D	50-M	60-S	DD-10-3	DD-43-3	C5642
39-M	50-S	AT-D-1-D	DD-10-4	DD-44-3	C5643
39-S	51-D	AT-D-1-M	DD-12-2	DD-44-4	C5644
40-M	51-M	AT-D-1-S	DD-12-3	DD-49-1	C5645
40-S	51-S	AT-D-2-M	DD-12-4	DD-49-2	C5646
41-D	52-D	AT-D-2-S	DD-15-2	DD-49-3	C5673
41-M	52-M	AT-D-3-D	DD-15-3	DD-49-4	C5674

DOE/RL-97-01, Rev. 5

41-S	52-S	AT-D-3-M	DD-15-4	DD-50-1	C5675
42-D	53-D	AT-D-3-S	DD-16-3	DD-50-2	C5676
42-M	53-M	AT-D-4-D	DD-16-4	DD-50-3	C5677
42-S	53-S	AT-D-4-M	DD-17-2	DD-50-4	C5678
43-D	54-D	AT-D-4-S	DD-17-3	DH-14-1	C5679
43-M	54-M	AT-D-5-D	DD-17-WP	DH-14-11	C5680
44-D	54-S	AT-D-5-M	DD-39-1	DH-22-1	C5681
44-M	55-D	AT-H-1-D	DD-39-2	DH-22-2	C5682
45-D	55-M	AT-H-1-M	DD-39-3	DH-22-3	C5683
45-M	55-S	AT-H-1-S	DD-39-4	DH-1451-1	C5684
ISRM Tubes					
REDOX 01 (ISRM-01)	REDOX 02 (ISRM-02)	REDOX 03 (ISRM-03)	REDOX 04 (ISRM-04)	--	--
Seeps					
SD-098-1	SD-102-1	SD-110-1	SD-110-2	SH-144-1	SH-145-1
SH-150-1	SH-152-2	SH-153-1	--	--	--

Note:

Alternate names are in parentheses ()

Table A-3. 100-KR-4 Operable Unit Lists*





(This list will be updated as necessary, presented at the 100 Areas Unit Manager's Meeting, and included in the UMM minutes)

- Shading indicates wells added for this change.

Well Names				
199-K-11	199-K-34	199-K-116A	199-K-130	199-K-158
199-K-13	199-K-35	199-K-117A	199-K-131	699-70-68
199-K-18	199-K-36	199-K-118A	199-K-132	699-72-73
199-K-19	199-K-37	199-K-119A	199-K-133	699-73-61
199-K-20	199-K-106A	199-K-120A	199-K-134	699-77-54
199-K-21	199-K-107A	199-K-121A	199-K-135	699-78-62
199-K-22	199-K-108A	199-K-122A	199-K-136	699-81-62
199-K-23	199-K-109A	199-K-123A	199-K-137	699-84-63D
199-K-27	199-K-110A	199-K-124A	199-K-138	699-87-55
199-K-29	199-K-111A	199-K-125A	199-K-139	C3152
199-K-30	199-K-112A	199-K-126	199-K-140	C3158
199-K-31	199-K-113A	199-K-127	199-K-141	C3162
199-K-32A	199-K-114A	199-K-128	199-K-142	C3163
199-K-32B	199-K-115A	199-K-129	199-K-143	C3164
Aquifer Tubes				
14-D	19-D	23-M	AT-K-3-D	AT-K-5-S
14-M	19-M	25-D	AT-K-3-M	AT-K-6-D
14-S	21-M	26-D	AT-K-3-S	AT-K-6-M
15-M	21-S	26-M	AT-K-4-M	AT-K-6-S
17-D	22-D	26-S	AT-K-4-S	DK-04-2
17-M	22-M	AT-K-1-D	AT-K-5-D	DK-04-3
18-S	23-D	AT-K-2-M	AT-K-5-M	--
Seep				
SK-057-3	SK-077-1	SK-082-2	SK-063-1	--

Attachment 4

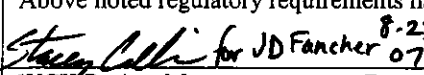
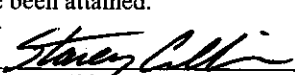
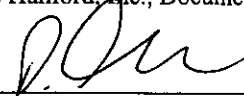

Waste Site: 118-F-2 Burial Ground	BACKFILL CONCURRENCE CHECKLIST (Concurrence to Proceed with Waste Site Backfill Operations)		WIDS Nos: 118-F-2	
This checklist is a summary of cleanup verification results for the 118-F-2 Burial Ground. The checklist is intended as an agreement allowing the RCCC subcontractor to backfill the burial ground excavation prior to the issuance of the final cleanup verification package. The lead regulatory agency has been provided copies of detailed calculations. The results are summarized below.				
Regulatory Requirement	Remedial Action Goals (RAG)	Results	RAG Attained	Ref.
Direct Exposure -- Radionuclides	1. Attain 15 mrem/yr dose rate above background over 1000 years.	1. Maximum dose rate calculated by RESRAD is 1.13 mrem/yr.	Yes	A
Direct Exposure -- Nonradionuclides	1. Attain individual COC RAGs.	1. All individual COC concentrations are below the RAGs.	Yes	B
Meet Nonradionuclide Risk Requirements	1. Hazard quotient of less than 1 for noncarcinogens..	1. The hazard quotients for individual nonradionuclide COCs in the shallow zone and overburden are less than 1.	Yes	B
	2. Cumulative hazard quotient of less than 1 for noncarcinogens.	2. The cumulative hazard quotient is less than 1 for the shallow zone and overburden.		B
	3. Excess cancer risk of $<1 \times 10^{-6}$ for individual carcinogens.	3. Excess cancer risk values for individual nonradionuclide COCs are less than 1×10^{-6} .		B
	4. Attain a total excess cancer risk of $<1 \times 10^{-5}$ for carcinogens.	4. Total excess cancer risk is less than 1×10^{-5} .		B
Groundwater/River Protection -- Radionuclides	1. Attain single COC groundwater & river RAGs.	1. Cesium-137 is calculated to reach groundwater in the 1,000 years of the RESRAD model run. However, it is not predicted to migrate to groundwater (and thus the Columbia River) at concentrations exceeding groundwater or river criteria within 1,000 years. Therefore, residual concentrations achieve the remedial action objectives for groundwater and river protection.	Yes	A
	2. Attain National Primary Drinking Water Regulations 4-mrem/yr (beta/gamma) dose standard to target receptor/organ.	2. All organ specific doses are below the 4-mrem/yr dose standard.		C
	3. Meet drinking water standards for alpha emitters: the more stringent of 15 pCi/L MCL or 1/25 th of the derived concentration guide for DOE Order 5400.5.	3. RESRAD modeling indicates that the alpha emitting COCs will not impact groundwater. Therefore, the alpha activity is 0 pCi/L for all years.		C
	4. Meet total uranium standard of 21.2 pCi/L.	4. Isotopic uranium concentrations are below background.		A
Groundwater/River Protection -- Nonradionuclides	1. Attain individual nonradionuclide groundwater and river cleanup requirements.	1. Residual concentrations of selenium exceeded soil RAGs for the protection of the Columbia River. However, it is predicted that selenium will not migrate to the Columbia River at concentrations exceeding river criteria within 1,000 years. Therefore, residual concentrations achieve the remedial action objective for river protection.	Yes	A

Waste Site: 118-F-2 Burial Ground	BACKFILL CONCURRENCE CHECKLIST (Concurrence to Proceed with Waste Site Backfill Operations)		WIDS Nos: 118-F-2
Other Supporting Information	1. Sample location design calculation brief.	D	
	2. Focus sample locations, results, and comparison to action levels.	E	
	3. LARADS survey	F	
<p>All citations above and references on attached sheet are on record with Washington Closure Hanford, Inc., Document Control. Above noted regulatory requirements have been attained.</p> <p>  8/16/07  8-16-07  8/17/07 </p> <p> WCH Project Manager Date WCH Project Engineer Date DOE Project Manager Date </p>			
<p>Given the attached information, DOE can proceed with backfill of the site with minimal risk. Final approval that the site has met RAOs and RAGs will occur with the submittal, review, and approval of the Cleanup Verification Package by the lead regulatory agency.</p> <p>  8-27-07 N/A N/A </p> <p> EPA Project Manager Date Ecology Project Manager Date </p>			

Backfill Concurrence Checklist Attachments/References

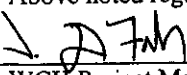

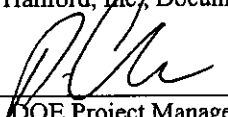
Attachment/ Reference	Description
A	118-F-2 Burial Ground Cleanup Verification RESRAD Calculation, Calculation No. 0100F-CA-V0286
B	118-F-2 Cleanup Verification 95% UCL Calculation, Calculation No. 0100F-CA-V0285
C	118-F-2 Burial Ground Cleanup Verification Comparison to Drinking Water Standards Calculation, Calculation No. 0100F-CA-V0287
D	118-F-2 Burial Ground Sample Design Shallow Zone / Stockpiles (ACL/BCL) Sampling Plan, Calculation No. 0100F-CA-V0284
E	118-F-2 Focus Sample Locations, Results, and Comparison to Generic Site Lookup Values
F	118-F-2 LARADS Survey

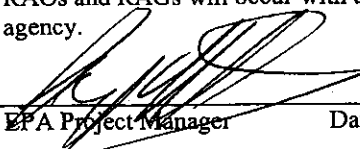
Waste Site: 118-F-5 Burial Ground		BACKFILL CONCURRENCE CHECKLIST (Concurrence to Proceed with Waste Site Backfill Operations)		WIDS Nos: 118-F-5	
This checklist is a summary of cleanup verification results for the 118-F-5 Burial Ground. The checklist is intended as an agreement allowing the RCCC subcontractor to backfill the burial ground excavation prior to the issuance of the final cleanup verification package. The lead regulatory agency has been provided copies of detailed calculations. The results are summarized below.					
Regulatory Requirement	Remedial Action Goals (RAG)	Results	RAG Attained	Ref.	
Direct Exposure – Radionuclides	1. Attain 15 mrem/yr dose rate above background over 1000 years.	1. Maximum dose rate estimated using generic dose equivalence lookup values is 5.7 mrem/yr.	Yes	A, C	
Direct Exposure – Nonradionuclides	1. Attain individual COC RAGs.	1. There are no non-radionuclide COCs for the 118-F-5 Burial Ground.	Yes	A	
Meet Nonradionuclide Risk Requirements	1. Hazard quotient of less than 1 for noncarcinogens.	1. There are no non-radionuclide COCs for the 118-F-5 Burial Ground.	NA	NA	
	2. Cumulative hazard quotient of less than 1 for noncarcinogens.	2. There are no non-radionuclide COCs for the 118-F-5 Burial Ground.		NA	
	3. Excess cancer risk of $<1 \times 10^{-6}$ for individual carcinogens.	3. There are no non-radionuclide COCs for the 118-F-5 Burial Ground.		NA	
	4. Attain a total excess cancer risk of $<1 \times 10^{-5}$ for carcinogens.	4. There are no non-radionuclide COCs for the 118-F-5 Burial Ground.		NA	
Groundwater/River Protection – Radionuclides	1. Attain single COC groundwater & river RAGs.	1. No radionuclide COCs were quantified above groundwater/river protection lookup values.	Yes	A	
	2. Attain National Primary Drinking Water Regulations 4-mrem/yr (beta/gamma) dose standard to target receptor/organ.	2. No radionuclide COCs were quantified above groundwater/river protection lookup values.		A	
	3. Meet drinking water standards for alpha emitters: the more stringent of 15 pCi/L MCL or 1/25 th of the derived concentration guide for DOE Order 5400.5.	3. No alpha-emitting radionuclide COCs were quantified above groundwater/river protection lookup values.		A	
	4. Meet total uranium standard of 21.2 pCi/L.	4. Uranium was not identified as a site COC.		NA	
Groundwater/River Protection – Nonradionuclides	1. Attain individual nonradionuclide groundwater and river cleanup requirements.	1. There are no non-radionuclide COCs for the 118-F-5 Burial Ground.	NA	A	
Other Supporting Information	1. Sample location design calculation brief. 2. 118-F-5 GPERS Radiological Survey Map			A D	

All citations above and references on attached sheet are on record with Washington Closure Hanford, Inc., Document Control. Above noted regulatory requirements have been attained.					
 Steven Collins for JD Fancher WCH Project Manager		8-23-07 Date	 Steven Collins WCH Project Engineer		8-23-07 Date
			 DOE Project Manager		8/27/07 Date
Given the attached information, DOE can proceed with backfill of the site with minimal risk. Final approval that the site has met RAOs and RAGs will occur with the submittal, review, and approval of the Cleanup Verification Package by the lead regulatory agency.					
 EPA Project Manager		8/29/07 Date	N/A Ecology Project Manager		N/A Date

Backfill Concurrence Checklist Attachments/References

Attachment/ Reference	Description
A	118-F-5 Burial Ground Cleanup Verification 95% UCL Calculation, Calculation No. 0100F-CA-V0289
B	118-F-5 Burial Ground Shallow Zone and Overburden Sample Design, Calculation No. 0100F-CA-V0291
C	118-F-5 Burial Ground Cleanup Verification using Generic Dose-equivalence Lookup Values
D	118-F-5 GPERS Radiological Survey Map

Waste Site: 100-F-26:14 116-F5 Influent Pipelines		BACKFILL CONCURRENCE CHECKLIST (Concurrence to Proceed with Waste Site Backfill Operations)		WIDS Nos: 100-F-26:14	
This checklist is a summary of cleanup verification results for the 100-F-26:14 116-F5 Influent Pipelines. The checklist is intended as an agreement allowing the RCCC subcontractor to backfill the excavation prior to the issuance of the final cleanup verification package. The lead regulatory agency has been provided copies of detailed calculations. The results are summarized below.					
Regulatory Requirement	Remedial Action Goals (RAG)	Results	RAG Attained	Ref.	
Direct Exposure – Radionuclides	1. Attain 15 mrem/yr dose rate above background over 1000 years.	1. The maximum all pathways dose rate calculated by RESRAD is 10.0 and 2.72 mrem/yr at year zero (2007) from the Overburden/Below Cleanup Level Stockpile (OB/BCL) area and Excavation Shallow respectively.	Yes	A	
Direct Exposure – Nonradionuclides	1. Attain individual COC RAGs.	1. All individual COC concentrations are below the RAGs.	Yes	A, B	
Meet Nonradionuclide Risk Requirements	1. Hazard quotient of less than 1 for noncarcinogens.	1. The hazard quotients for individual nonradionuclide COCs in the shallow zone and OB/BCL stockpiles are less than 1.	Yes	C	
	2. Cumulative hazard quotient of less than 1 for noncarcinogens.	2. The cumulative hazard quotient is less than 1 for the shallow zone and OB/BCL stockpiles.		C	
	3. Excess cancer risk of $<1 \times 10^{-6}$ for individual carcinogens.	3. Excess cancer risk values for individual nonradionuclide COCs are less than 1×10^{-6} .		C	
	4. Attain a total excess cancer risk of $<1 \times 10^{-5}$ for carcinogens.	4. Total excess cancer risk is less than 1×10^{-5} .		C	
Groundwater/River Protection – Radionuclides	1. Attain single COC groundwater & river RAGs.	1. None of the radionuclide COCs are predicted to reach groundwater. All single COC Groundwater and river RAGs have therefore been attained.	Yes	A	
	2. Attain National Primary Drinking Water Regulations 4-mrem/yr (beta/gamma) dose standard to target receptor/organ.	2. None of the radionuclide COCs are predicted to reach groundwater within 1,000 years.		A	
	3. Meet drinking water standards for alpha emitters: the more stringent of 15 pCi/L MCL or 1/25 th of the derived concentration guide for DOE Order 5400.5.	3. None of the radionuclide COCs are predicted to reach groundwater within 1,000 years.		A	
	4. Meet total uranium standard of 21.2 pCi/L.	4. The total uranium COCs (U-235 and U-238) are present at concentrations less than natural background.		B	
Groundwater/River Protection – Nonradionuclides	1. Attain individual nonradionuclide groundwater and river cleanup requirements.	1. Residual concentrations of lead exceeded the soil RAG for the protection of groundwater and/or the Columbia River. However, it is predicted that this constituent will not migrate to groundwater (and thus the Columbia River) at concentrations exceeding groundwater or river criteria within 1,000 years. Therefore, residual concentrations achieve the remedial action objectives for groundwater and river protection.	Yes	G	
Other Supporting Information	1. Sample location design calculation brief.			D	
	2. Variance sampling calculation briefs			E, F	
All citations above and references on attached sheet are on record with Washington Closure Hanford, Inc., Document Control. Above noted regulatory requirements have been attained.					
					
WCH Project Manager		Date		Date	

Waste Site: 100-F-26:14 116-F5 Influent Pipelines	BACKFILL CONCURRENCE CHECKLIST (Concurrence to Proceed with Waste Site Backfill Operations)	WIDS Nos: 100-F-26:14
Given the attached information, DOE can proceed with backfill of the site with minimal risk. Final approval that the site has met RAOs and RAGs will occur with the submittal, review, and approval of the Cleanup Verification Package by the lead regulatory agency.		
 EPA Project Manager	Date <u>10-9-07</u>	N/A Ecology Project Manager
		N/A Date

Backfill Concurrence Checklist Attachments/References

Attachment/ Reference	Description
A	100-F-26:14 116-F5 Influent Pipelines Cleanup Verification RESRAD Calculation Brief, Calculation No. 0100F-CA-V0312
B	100-F-26:14 116-F5 Influent Pipelines Cleanup Verification 95% UCL Calculation, Calculation No. 0100F-CA-V0305
C	100-F-26:14 Hazard Quotient and Carcinogenic Risk Calculations, Calculation No. 0100F-CA-V0311
D	100-F-26:14 Pipeline Sample Design, Calculation No. 0100F-CA-V0309
E	100-F-26:14 Pipeline Shallow Zone Variance Calculation, Calculation No. 0100F-CA-V0297
F	100-F-26:14 Pipeline BCL Stockpile Variance Calculation, Calculation No. 0100F-CA-V0298
G	Reference: BHI, 2005a, <i>100 Area Analogous Sites RESRAD Calculations</i> , 0100X-CA-V0050, Rev. 0, Bechtel Hanford, Inc., Richland, Washington.

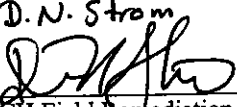
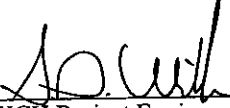


Waste Site: 118-F-8:4 Fuel Storage Basin		BACKFILL CONCURRENCE CHECKLIST (Concurrence to Proceed with Waste Site Backfill Operations)		WIDS Nos: 118-F-8:4	
This checklist is a summary of cleanup verification results for the 118-F-8:4 Fuel Storage Basin. The checklist is intended as an agreement allowing the RCCC subcontractor to backfill the excavation prior to the issuance of the final cleanup verification package. The lead regulatory agency has been provided copies of detailed calculations. The results are summarized below.					
Regulatory Requirement	Remedial Action Goals (RAG)	Results	RAG Attained	Ref.	
Direct Exposure – Radionuclides	1. Attain 15 mrem/yr dose rate above background over 1000 years.	1. The maximum all pathways dose rate calculated by RESRAD is 1.70 and 1.31 mrem/yr at year zero (2007) from the Overburden/Below Cleanup Level Stockpile (OB/BCL) area and combined Excavation Shallow and Deep Zone respectively.	Yes	A	
Direct Exposure – Nonradionuclides	1. Attain individual COC RAGs.	1. All individual COC concentrations are below the RAGs.	Yes	A, B	
Meet Nonradionuclide Risk Requirements	1. Hazard quotient of less than 1 for noncarcinogens.	1. The hazard quotients for individual nonradionuclide COCs in the shallow zone, deep zone and OB/BCL stockpiles are less than 1.	Yes	C	
	2. Cumulative hazard quotient of less than 1 for noncarcinogens.	2. The cumulative hazard quotient is less than 1 for the shallow zone, deep zone and OB/BCL stockpiles.		C	
	3. Excess cancer risk of $<1 \times 10^{-6}$ for individual carcinogens.	3. Excess cancer risk values for individual nonradionuclide COCs are less than 1×10^{-6} .		C	
	4. Attain a total excess cancer risk of $<1 \times 10^{-5}$ for carcinogens.	4. Total excess cancer risk is less than 1×10^{-5} .		C	
Groundwater/River Protection – Radionuclides	1. Attain single COC groundwater & river RAGs.	1. Cesium-137, cobalt-60, nickel-63, and strontium-90 are calculated to reach groundwater in the 1,000 years of the RESRAD model run. However, none of these constituents is predicted to migrate to groundwater (and thus the Columbia River) at concentrations exceeding groundwater or river criteria within 1,000 years. Therefore, residual concentrations achieve the remedial action objectives for groundwater and river protection.	Yes	A	
	2. Attain National Primary Drinking Water Regulations 4-mrem/yr (beta/gamma) dose standard to target receptor/organ.	2. All organ specific doses are below the 4-mrem/yr dose standard.		D	
	3. Meet drinking water standards for alpha emitters: the more stringent of 15 pCi/L MCL or 1/25 th of the derived concentration guide for DOE Order 5400.5.	3. RESRAD modeling indicates that the alpha emitting COCs will not impact groundwater. Therefore, the alpha activity is 0 pCi/L for all years.		D	
	4. Meet total uranium standard of 21.2 pCi/L.	4. The total uranium COCs (U-233/234, U-235, and U-238) are present at concentrations less than natural background.		A	
Groundwater/River Protection – Nonradionuclides	1. Attain individual nonradionuclide groundwater and river cleanup requirements.	1. Residual concentrations of lead, mercury and Aroclor-1260 exceeded soil RAGs for the protection of groundwater and/or the Columbia River. However, it is predicted that these constituents will not migrate to groundwater (and thus the Columbia River) at concentrations exceeding groundwater or river criteria within 1,000 years. Therefore, residual concentrations achieve the remedial action objectives for groundwater and river protection.	Yes	F	

Waste Site: 118-F-8:4 Fuel Storage Basin		BACKFILL CONCURRENCE CHECKLIST (Concurrence to Proceed with Waste Site Backfill Operations)		WIDS Nos: 118-F-8:4	
Other Supporting Information	1. Sample location design calculation brief.				E
	2. Variance sampling calculation briefs				G, H
	3.				
All citations above and references on attached sheet are on record with Washington Closure Hanford, Inc., Document Control. Above noted regulatory requirements have been attained.					
<i>J.P. Farley</i> WCH Project Manager		9/27/07 Date	<i>Stacy W. Cullen</i> WCH Project Engineer		9-27-07 Date
			<i>P. Cullen</i> DOE Project Manager		10/3/07 Date
Given the attached information, DOE can proceed with backfill of the site with minimal risk. Final approval that the site has met RAOs and RAGs will occur with the submittal, review, and approval of the Cleanup Verification Package by the lead regulatory agency.					
<i>[Signature]</i> EPA Project Manager		10-11-07 Date	N/A Ecology Project Manager		N/A Date

Backfill Concurrence Checklist Attachments/References

Attachment/ Reference	Description
A	118-F-8:4 105-F Fuel Storage Basin Cleanup Verification RESRAD Calculation Brief, Calculation No. 0100F-CA-V0303
B	118-F-8:4 105-F Fuel Storage Basin Cleanup Verification 95% UCL Calculation, Calculation No. 0100F-CA-V0279
C	118-F-8:4 Hazard Quotient and Carcinogenic Risk Calculations, Calculation No. 0100F-CA-V0296
D	118-F-8:4 105-F Fuel Storage Basin Comparison to Drinking Water Standards (MCL) Calculation Brief, Calculation No. 0100F-CA-V0304
E	118-F-8:4 Fuel Storage Basin Sampling Plan, Calculation No. 0100F-CA-V0307
F	BHI, 2005a, 100 Area Analogous Sites RESRAD Calculations, 0100X-CA-V0050, Rev. 0, Bechtel Hanford, Inc., Richland, Washington.
G	WCH, 2007a 100-F-8:4 Fuel Storage Basin BCL Variance Calculation, Calculation No. 0100F-CA-V0302
H	WCH, 2007b 100-F-8:4 Fuel Storage Basin Variance Shallow Zone Calculation, Calculation No. 0100F-CA-V0301

Waste Site: 118-B-1 Burial Ground		BACKFILL CONCURRENCE CHECKLIST (Concurrence to Proceed with Waste Site Backfill Operations)		WIDS No: 118-B-1	
This checklist is a summary of cleanup verification results for the 118-B-1 Burial Ground. The checklist is intended as an agreement allowing the RCCC subcontractor to backfill the excavation prior to the issuance of the final remaining sites verification package. This backfill concurrence considers results for all verification samples, including those from sampling areas in the previously approved backfill concurrence for overburden, below cleanup level stockpiles, and staging pile areas. Copies of calculations are included with this checklist with results summarized below.					
Regulatory Requirement	Remedial Action Goals (RAG)	Results	RAG Attained	Ref.	
Direct Exposure – Radionuclides	1. Attain 15 mrem/yr dose rate above background over 1,000 years.	1. The maximum predicted dose rates for the 118-B-1 Burial Ground are less than 15 mrem/yr. Carbon-14 and strontium-90 activities were not included in the plant ingestion pathway for the excavation, because residual activities are below the root penetration zone.	Yes	D, E	
Direct Exposure – Nonradionuclides	1. Attain individual RAGs.	1. All individual contaminant of concern (COC) and contaminant of potential concern (COPC) concentrations are below the direct exposure RAGs.	Yes	A, B	
Nonradionuclide Risk Requirements	1. Attain hazard quotient of less than 1 for noncarcinogens.	1. The hazard quotients for individual nonradionuclide COCs/COPCs are less than 1.	Yes	C	
	2. Attain cumulative hazard quotient of less than 1 for noncarcinogens.	2. The cumulative hazard quotient for all sampling areas and focused samples (8.8×10^{-1}) is less than 1.		D	
	3. Attain excess cancer risk of $<1 \times 10^{-6}$ for individual carcinogens.	3. Excess cancer risk values for individual nonradionuclide COCs/COPCs are less than 1×10^{-6} .		D	
	4. Attain a total excess cancer risk of $<1 \times 10^{-5}$ for carcinogens.	4. The total excess carcinogenic risk for all sampling areas and focused samples (8.0×10^{-7}) is less than 1×10^{-5} .		D	
Groundwater/River Protection – Radionuclides	1. Attain single COC groundwater & river RAGs.	1. Among the radionuclide COCs, only cesium-137, cobalt-60, and strontium-90 are calculated to reach groundwater at concentrations significantly below the RAGs. Tritium was not included in the evaluation, as an Explanation of Significant Difference provides for controls to minimize further mobilization of residual tritium contamination in the deep vadose zone and allow interim site closure without further excavation based on evaluation of balancing factors.	Yes	D, E, F	
	2. Attain National Primary Drinking Water Regulations 4 mrem/yr (beta/gamma) dose standard to target receptor/organ.	2. The maximum calculated dose from beta/gamma-emitting radionuclides is less than 4 mrem/yr.	Yes	F	
	3. Meet drinking water standards for alpha emitters: the more stringent of 15 pCi/L MCL or 1/25 th of the derived concentration guide for DOE Order 5400.5.	3. No alpha-emitting radionuclide COC/COPCs are predicted to impact groundwater.	Yes	D, E, F	
	4. Meet total uranium standard of 21.2 pCi/L.	4. No uranium isotopes were detected above background levels in verification soil samples.	Yes	A, B	

Waste Site: 118-B-1 Burial Ground		BACKFILL CONCURRENCE CHECKLIST (Concurrence to Proceed with Waste Site Backfill Operations)		WIDS No: 118-B-1	
Regulatory Requirement	Remedial Action Goals (RAG)	Results	RAG Attained	Ref.	
Groundwater/River Protection – Nonradionuclides	1. Attain individual nonradionuclide groundwater and river cleanup requirements.	1. Residual concentrations of multiple metals and organic compounds exceeded soil RAGs for the protection of groundwater and/or the Columbia River. However, none of these constituents is predicted to migrate to groundwater (and thus the Columbia River) at concentrations exceeding groundwater or river criteria within 1,000 years. Therefore, residual concentrations achieve the remedial action objectives for groundwater and river protection.	Yes	A	
Other Supporting Information	1. Site-Specific Close-out Approach 2. Sampling Design 3. Sample Area Layout			G H I	
All citations above and attached sheets are on record with Washington Closure Hanford, Records and Document Control. Above noted regulatory requirements have been attained.					
<div style="display: flex; justify-content: space-between;"> <div> D. N. Strom  WCH Field Remediation Manager </div> <div> 10-8-07 Date </div> <div>  WCH Project Engineer </div> <div> 10/8/07 Date </div> <div>  DOE Project Manager </div> <div> 10/9/07 Date </div> </div>					
Given the attached information, DOE can proceed with backfill of the site with minimal risk. Final approval that the site has met remedial action objectives and goals will occur with the submittal, review, and approval of the Remaining Sites Verification Package(s) by the lead regulatory agency.					
<div style="display: flex; justify-content: space-between;"> <div>  EPA Project Manager </div> <div> 10-11-07 Date </div> <div> N/A Ecology Project Manager </div> <div> N/A Date </div> </div>					

Attachment 5



**Change Notice for Modifying Approved Documents/ Workplans
In Accordance with the Tri-Party Agreement Action Plan,
Section 9.0, Documentation and Records**

Change Number	Document Submitted Under Tri-Party Agreement Milestone	Date:	
TPA-CN-183	NA	09/24/07	
Document Number and Title: DOE/RL-2005-42, Rev. 1 "100 Area and 300 Area Component of the RCBRA Sampling and Analysis Plan"		Date Document Last Issued: November 2006	
Originator: Duane Jacques		Phone: 509-372-9644	
Description of Change:			
<p><u>Stacy Charboneau</u> , <u>Larry Gadbois</u> , and <u>John Price</u> agree that the proposed change RL EPA Ecology</p> <p>to an approved workplan/document will be processed in accordance with the Tri-Party Agreement Action Plan, Section 9.0, <i>Documentation and Records</i>, and not Chapter 12.0, <i>Changes to the Agreement</i>.</p> <p>A) Table 2-5, Analytical Performance Requirements for Tissue Analysis, contains a probable typographical error in the detection levels specified for PCB Aroclor mixtures. The stated DL of 0.0017 mg/kg should be listed as 0.0165 mg/kg.</p> <p>B) Supplemental sampling plan to provide additional data for key parameters (5 pages, attached).</p> <p>Note:</p>			
Justification and Impacts of Change:			
<p>A) Correction of apparent typographical error in analytical performance table will ensure correct performance requirements are applied to future samples.</p> <p>B) Supplemental sampling plan is necessary for re-sampling sculpin and sediment from several sampling location and to add analyses for PCB congeners and aroclor mixtures.</p>			
Approvals:			
<u>Stacy Charboneau</u> RL Unit Manager*	<u>9/25/07</u> Date	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Disapproved
<u>Larry Gadbois</u> EPA Unit Manager*	<u>9-25-07</u> Date	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Disapproved
<u>John B Price</u> Ecology Unit Manager*	<u>9/27/07</u> Date	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Disapproved

Additional Sculpin and Sediment Sampling to Support the 100 and 300 Area Component of River Corridor Baseline Risk Assessment

This plan provides information proposing re-sampling of river sculpin and shoreline sediment from selected sampling locations along the Columbia River. This is in response to a letter from the U.S. Environmental Protection Agency and the Washington State Department of Ecology to the Department of Energy on July 12, 2007. The purpose of the re-sampling is to correct data deficiencies related to sculpin and sediment in the near-shore river aquatic zone.

SCULPIN SAMPLING

Sculpin in the Columbia River are a middle trophic-level receptor and represent a significant component of the risk assessment model. Deficiencies have been identified in the polychlorinated biphenyl (PCB) measurements performed on the sculpin tissue collected in the original round of sampling.

The analytical laboratory did not meet the PCB detection limits specified in the RCBRA Sampling and Analysis Plan, or SAP, (DOE/RL-2005-42, Rev 1)¹. A more sensitive analytical method is being proposed to achieve the lowest detection limits possible for PCBs in sculpin collected from a subset of the impacted data and sites. The sculpin tissue will be analyzed for the PCB Aroclor mixtures for toxicity evaluation and comparison to the more sensitive congener analytical method.

The original analytical method for arsenic in the sculpin tissues may lead to an overly conservative estimate of exposure to toxic arsenic in the risk assessment. The original analysis of arsenic did not differentiate between organic and inorganic species. Quantifying the percentage of inorganic arsenic in the sculpin tissue samples will provide a more accurate estimate of toxic arsenic in the receptor organisms. Analysis of inorganic arsenic in fish tissue is being proposed for the same sculpin tissue samples collected for PCB analysis.

Sculpin tissue from one of the proposed sampling sites, near 100-F Area, will also be analyzed for total metals along with PCBs and inorganic arsenic.

Sculpin Field Sampling Plan

Sculpin in shallow water along the river shoreline of selected sampling locations will be collected by electrofishing. Electrofishing for sculpin is most efficient at river flow levels below 100,000 cubic feet/second (cfs), preferably below 70,000 cfs. Sample collection is planned for the month of September as a consequence of permit requirements and likely optimal river flow conditions.

¹ Further review of the SAP (DOE/RL-2005-42) has revealed a probable typographical error in the detection levels specified for PCB Aroclor mixtures in tissue. The stated DL of 0.0017 mg/kg should be listed as 0.0165 mg/kg.

Proposed sampling locations (from DOE/RL-2005-42, Rev 1) for fish are listed in Table 1 below. Because electrofishing occurs over a stretch of the river shore and not a point, the locations listed are areas covering varying distances depending on the availability of sculpin.

Table 1. Proposed Sculpin Sampling Locations

Location	Comments
100 Area and 300 Area Locations	
Vernita Reference Site 14	Background reference site on north side of river across from Jaeger Slough
100-B/C	Location of previous PCB 'hits' in sculpin from 100-B/C pilot study
Cr 1 to Cr 2	Downriver end of 100-K Area
Cr 5 to Cr 6	Upriver of 100-D intake structure
Cr 7 to Cr 10	Downriver end of 100-D Area
100-F	Off former Riparian #7 site ¹
U 3 to U 4	Near center of 300 Area uranium plume
Inter-Areas Locations	
2J	Re-sampling
2L	First fish sampling for location
2M	First fish sampling for location
3B	Re-sampling
4B	First fish sampling for location

¹ - A burning pit waste site was recently dug out to the river bank, PCBs were found in the old ash deposits. Fish in this area have not been previously sampled.

Split samples will also be collected for analysis of radionuclides by the Washington State Department of Health (DOH) depending on the availability of sculpin and DOH funding. The locations and associated radionuclides shown in Table 2 below were detected during the 2005-2006 collection effort.

Table 2. Split Sample Locations and Analyses

Location	Analytes for DOH Splits
Vernita Reference Site 14	Isotopic Uranium
100 B/C	Tritium, Strontium-90
U3-U4	Isotopic Uranium, Total beta radiostrontium

Sculpin Tissue Analysis

For the 100 and 300 Area supplemental sampling locations, sculpin will be collected, inspected, and prepared per section 3.2.8 Fish Samples of the Sampling and Analysis Instruction, SAI, (WCH-47). Sculpin tissue collected from the selected 100 Area and 300 Area locations and Inter-Areas locations will be analyzed using the methods listed in Table 3. If sufficient sample mass is not obtained, the tissue shall be analyzed in accordance with the order of analysis listed in Table 3. Inter-Areas locations identified as first fish sampling will performed in accordance with the contingencies outlined in section 3.5.4 of the SAP (DOE/RL-2005-42, Rev 1).

Table 3. Sculpin Tissue Analyses

Contaminant	Analytical Method	Chemical Abstracts Service Number	Laboratory Detection Limit (pCi/g or mg/kg) ¹	Locations
PCB Congeners	Method 1668A	Various	0.01 to 0.02 ppb ²	All in Table 1
PCB Aroclor Mixtures	EPA Method 8082	Chemical Specific	0.0165	All in Table 1
Total Metals (arsenic)	SW-846 Method 6010	Various/7440-38-2 (for arsenic)	Various/1.0 for arsenic	All in Table 1
Inorganic arsenic	Modified Method 1632A	7440-38-2	0.010	All in Table 1
Strontium-90	Total Rad Sr-GPC	10098-97-2	1.0	100-B/C, U3-U4
Isotopic Uranium	Isotopic U - AEA	13966-29-5/ 15117-96-1/ 7440-61-1	1.0	Ref. 14, U3-U4
Tritium	H-3	10028-17-8	10	100-B/C

¹ Laboratory detection limits shown are expected. Actual results may be impacted by available sample material, matrix effects or both.

² Per congener/congener coelution reported.

AEA = alpha energy analysis

GPC = gas proportional counter

Sculpin Tissue Data Analysis

Data for all individual PCB congener results will be provided in the risk assessment. Some PCB congeners are commonly considered to be “dioxin-like” in form and toxicity. These “dioxin-like” PCB congeners will be summed to a “dioxin equivalents” value. The dioxin equivalent value will be evaluated in both human and ecological risk assessments. In addition, total PCBs will be evaluated in two ways – as the sum of all individual PCB congener results and as the sum of each aroclor mixture result. Total PCBs, as the sum of each aroclor mixture and as the sum of all congeners, will be evaluated in both the human and ecological risk assessments.

Risk calculations that appeared in the Risk Assessment Draft A document will be replaced with risk calculations based entirely on the new data. Text will be included notifying the readers that the calculations have been updated and explaining why the old data does not meet quality requirements.

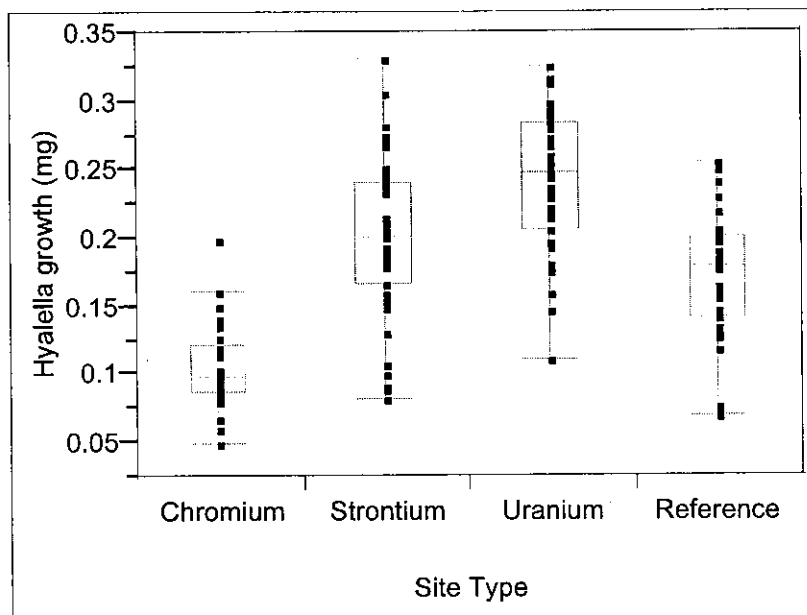
SEDIMENT SAMPLING/POREWATER CONDUCTIVITY

During the initial sampling event for the 100/300 Area RCBRA, hexavalent chromium results in the river sediment samples were called into question because of data recording and holding time issues. As a result, hexavalent chromium results for river sediment collected from 18 of the 35 locations sampled have been marked as “not usable” and are not evaluated in the risk assessment. The remaining 17 of the sample results that are not in question and are considered acceptable for use in the data evaluation showed “non-detect” results.

The Draft A of the RCBRA identified a possible correlation between reduced *Hyaella azteca* growth (used to determine sediment toxicity) and river sediment that was collected from stretches of the river where the chromium plumes emerge (see Figure 1). The *H.*

azteca bioassay growth and survival results from these sediment samples appear to be correlated with sediment particle size. However, it not possible to rule out any correlation between *H. azteca* growth and survival to hexavalent chromium levels in sediment because of the exclusion of the hexavalent chromium results in question. This re-sampling addresses this uncertainty.

Figure 1. *Hyaella azteca* Growth in Hanford Site Sediment².



Finally, uncertainty over the degree to which porewater is mixed with river water has been raised as a concern. Consequently, porewater conductance measurements for the aquifer tubes will be obtained when the sediment samples are being collected.

This plan proposes sampling of the 10 chromium sample locations with questionable hexavalent chromium results along with two upstream reference locations. The two upstream reference locations will be re-sampled to provide a comparability check with the original data. The new samples will be analyzed for hexavalent chromium along with the parameters originally required by the SAP (DOE/RL-2005-42, Rev 1).

² The aquatic environment sampled is comprised of chromium, strontium and uranium plumes and upriver reference sites. The multiple results for each plume reflect the multiple number of individual bioassay tests run for each sample.

Sediment Field Sampling Plan

Proposed sampling locations (from DOE/RL-2005-42, Rev 1) for sediment and pore water are listed below.

- Cr 1 through Cr 10 (10 sites)
- Reference 11 and Reference 16

Samples collected as a part of the sediment re-sampling activities will be analyzed using the following methods.

Table 4. Sediment Sample Analyses

Contaminant	Analytical Method	Chemical Abstracts Service Number	Laboratory Detection Limit (mg/kg) ¹	Locations
Total metals (including chromium)	SW-846 Method 6010	Various/7440-47-3 for chromium	1.0 for chromium	All
Hexavalent chromium	7196A	18540-29-9	0.5	All
Particle size	ASTM D422	N/A	None	All
Nutrients -TOC	ASTM E777	TOC	25	All
Nutrients - phosphate	Method 300.0	14265-44-2	5	All
Nutrients – TKN	Method 351.4	K-Kjeldahl	2.5	All
Nutrients – Ammonia	Method 350.3	7663-41-7	0.5	All
Hyalella Bioassay	ASTM E1706	N/A	None	All
Specific Conductance	Method 9050A	Conduct	1 uSm/cm	All

¹ Laboratory detection limits shown are expected. Actual results may be impacted by available sample material, matrix effects or both.

Sediment Data Analysis:

The supplemental sediment and conductance data will be evaluated for comparability with the original data set for each location. If the total chromium, particle size, and nutrient data are comparable (less than 50% relative standard deviation or relative percent difference), then both the original and supplemental data will be used for each location. If the data are not comparable, only the supplemental data will be used.

Based on the evaluation explained above, total chromium, hexavalent chromium, particle size, and nutrient analyses results from the sediment samples will be compared to the reference site data using Dunnett's multiple comparison t-test. These data will also be used to evaluate the contaminant of potential ecological concern (COPEC) gradient analyses where the average values by location are compared using simple linear regression analysis. If there are significant variations in *H. azteca* growth, then a statistical analysis will be performed to identify how much of the growth difference can be explained by differences in hexavalent chromium concentration, other metals, sediment particle size, and nutrients.